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G07F 9/02.

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(12) PATENT SPECIFICATION
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(54) Display Device
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(74) GH
(57) Claim

1. A device comprising means for receiving signals from at least one coin-freed machine responsive to operation of the machine(s), means for counting the received signals, means for providing an indication of a determined total number of signals received, and means for indicating the machine from which a said signal emanates which results in the determined number being reached.

AUSTRALIA

Form 10

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COMPLETE SPECIFICATION

(ORIGINAL)

FOR OFFICE USE

FOR RELEVANT INFORMATION SEE ABSTRACT

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Complete Specification for the invention entitled: "DISPLAY DEVICE"

The following statement is a full description of this invention, including the best method of performing it known to me /~~us~~:

This invention relates to a device, hereinafter referred to for convenience as a display device, which is intended for use in conjunction with at least one, but usually two or more, coin freed machines.

The display device has been developed primarily to be used with gaming machines, typically poker machines, but it may equally be used in conjunction with any type of coin freed machine. For example, the device may be used in conjunction with machines of the type which are used to admit fee paying persons through gates or turnstyles.

The device in accordance with the invention may be broadly defined as comprising means for receiving signals from at least one coin freed machine responsive to operation of the machine(s), means for counting the received signals, means for providing an indication of a determined total number of signals received, and means for indicating the machine from which a signal emanates which results in the determined total number being reached.

When used in conjunction with gaming machines, for example poker machines, the device would normally be connected electrically to at least two such machines, with a signal being received from whichever of the machines is at any one instant actuated. The total number of received signals are counted until such time as a determined number of input signals are recorded, whereupon the device indicates a "bonus" having been scored and indicates the machine which was actuated to cause the determined count being reached.

The bonus, which may comprise a cash payment, would then be awarded independantly of any other payments made by the individual machines during the period of play leading to the determined count level.

Once the determined count level has been reached, the device may be reset to start counting afresh the inputs from the connected machines. However, in accordance with a preferred embodiment of the present invention, the counting of input signals continues until further determined count levels are reached, whereupon second and subsequent level bonus awards are made, some of which bonus award levels providing for a higher order pay-out than others. After the final order bonus (e.g. the ninth or tenth bonus) has been awarded the device is then reset to start counting afresh.

The device would normally be used in conjunction with a bank of gaming machines, say ten machines, which are grouped together within a particular area of a building. Different ones of the bank of machines may accept coins of different denomination and, in such case, the bonus awards may be scaled in accordance with the coin denomination of the particular machine to which a bonus is awarded. Thus, the device according to the present invention may incorporate means for computing a bonus award level to correspond with the coin denomination of a machine from which a signal emanates which results in a bonus award.

Also, the device may incorporate a recording or memory means which stores information as to the bonus awards made

a wire connection) to an associated input element of the display device. Three such input elements 13, 14 and 15 are provided in the display device, one for each poker machine.

The output signal from each poker machine is conventionl obtained as an electrical pulse which is developed by the closing of a switch (not shown) during actuation of the poker machine handle. A signal from one or other of the poker machines 10, 11 or 12 results in the generation of a pulse at the associated input element 13, 14 or 15.

A signal applied to one or other of the input elements 13 to 15 results in a pulse of fixed duration being generated and applied to six counters 16 to 21. The first counter 16 is initially enabled at switch-on of the display device and, as described below, subsequent to an output pulse being produced by the sixth counter 21.

The counter 16 counts applied pulses, resulting from output signals from one or other or all of the poker machines 10 to 12 and, on the ten-thousandth applied pulse provides an output pulse to a display tube or indicator 22. This display indicator is also shown in Figure 2 and it provides indication for players using the machines that 10,000 counts have been recorded.

Upon the ten-thousandth pulse being applied, counter 16 is disabled and the next counter 17 is enabled. Counter 17 then counts applied pulses resulting from output signals from the poker machines and it too provides an output pulse following a count level of 10,000 (i.e. 20,000 total). The

output pulse from counter 17 is applied to an indicator 23, which records the twenty-thousandth signal, and to indicator 24 which displays the fact that a bonus is being awarded. Additionally, the output pulse from counter 17 is used to enable indicators 25 to 27. A relevant one of the indicators 25 to 27 is simultaneously energised by the pulse which results in the twenty-thousandth signal indication and hence indication is given as to which poker machine the bonus is to be awarded. The person playing that machine then receives the benefit of the bonus.

The output pulse from counter 17 is also employed to enable counter 18 (with counter 17 being simultaneously disabled), and the above described procedure is repeated, firstly in respect of counters 18 and 19 and then in respect of counters 20 and 21. When counter 21 is finally disabled, in the same manner as counter 17, as described above, counter 16 is again enabled and the entire process is repeated.

With outputs being derived from counters 19 and 21, at the forty-thousandth and sixty-thousandth input signals respectfully, progressively higher bonus payments are made.

Although described above in the context of use with three poker machines, the display device may in fact be used in association with any number of poker machines.

An alternative form of the device is now described with reference to Figures 2 and 3 of the drawings.

In this case, each machine 30-1, 30-2 etc. of a bank of, say, ten machines is connected to its own circuit 31-1,

31-2, etc. and a further circuit 32 is common to all of the machines. When any one of the machines 30 is operated, a micro-switch (not shown) within the machine is temporarily closed and this results in an electrical signal being applied to an associated pulse shaper 33. The pulse shaper may comprise a multi-vibrator which produces a square wave pulse output of short duration when triggered by a signal resulting from operation of the associated machine 30.

The output pulse from the pulse shaper 33 is applied to a latch 34, typically a set-reset flip-flop, which, when set by an incoming pulse from the pulse shaper 33, applies an input to a two-input AND gate 35. The second input to the AND gate 35 is obtained from a sequence generator 36, typically a clock pulse generator, and when both inputs to the AND gate are at a logical 1 level an output is derived which is applied to both a second AND gate 37 and an adder 38.

The sequence generator 36 has as many outputs as there are poker machines 30 (ten outputs S_1 to S_{10} being indicated in Figure 3, for a bank of ten machines), and each output is constituted by one pulse of a pulse train produced by the clock pulse generator. Successive ones of the pulses are applied cyclically to respective ones of the AND gates 35, i.e. pulse S_1 to the AND gate 35 associated with machine 30-1, pulse S_2 to the AND gate 35 associated with machine 30-2, etc. Also, succeeding ones of the generator output pulses are applied to the reset input of the latches 34, so that the latch 34 associated with machine 30-1 is reset by the

trailing edge of pulse S_2, the latch 34 associate with machine 30-2 is reset by the trailing edge of pulse S_3, etc.

The sequence generator functions continuously so that the cycle repeats and pulse S_1 follows S_{10} without there being any change in the period of the space between the pulses of the successive cycles. The sequence generator may operate at a frequency of 1 KHz so that, for ten machines, a gating pulse is applied to the AND gate 35 associated with each machine once every $\frac{1}{100}$ th second.

Thus, assuming the machine 30-1 is actuated, an input will appear at the associated AND gate 35 and, within $\frac{1}{100}$ th second the gating pulse S_1 will also appear at the AND gate to cause an input to be applied to the adder 38. Thereafter, the trailing edge of pulse S_2 will reset the latch 34 and result in removal from the AND gate input of the signal which has indicated actuation of the machine. This arrangement makes allowance for simultaneous actuation of any two or more of the machines 30-1, 30-2, etc. and the clock frequency of 1 KHz has been chosen to be very high relative to the highest possible operating frequency of each of the machines, this normally being in the order of twelve operations per minute.

The (single) adder 38 receives, as its input, sequential signals from all of the AND gates 35, and it functions to sum all input pulses due to actuation of the various machines 30-1, 30-2, etc. A scaler 39 (typically a counter) is connected in circuit with the adder 38 and functions to

provide an output when successive predetermined numbers of pulses are received and which correspond with operations of the total number of machines. Thus, for example, the scaler provides an output once per forty-thousand input pulses to the adder.

The scaler 39 may be constructed as a simple counter which provides an output pulse upon receipt by the adder of the forty-thousandth input pulse, or it may incorporate a psuedo-random binary sequence generator which is arranged to provide for an output on a psuedo-random basis, one per every forty-thousand input pulses.

The output from the scaler 39 is applied to each of the AND gates 37, this resulting in an output from whichever one of the AND gates 37 that has been enabled as a result of the associated poker machine operation. For example, assuming that actuation of the machine 30-1 results in the output pulse from scaler 39, then the AND gate 37 associated with the machine 30-1 will provide an output which is applied to a latch (e.g., a set-reset flip-flop) 40. Setting of the latch 40 then results in energization of a lamp driver 41 and energization of a lamp 42 associated with the poker machine 30-1.

The output from the scaler 39 is also applied to the serial input of a shift register 43 which increments with each input. Then, immediately following each serial input to the register, the contents of the register are cycled via

a parallel output/input circuit and those the parallel outputs which are at a logical one level are employed to energize connected lamps 44 by way of lamp drivers 45. Thus, with the first output pulse from the scaler 39, the first of the lamps 44 is energized and then remains energized. Then, with the second output pulse from the scaler 39 the second of the lamps 44 is energized, and so on until all of the lamps 44 are energized. Initial energization of each of the lamps 44 occurs substantially simultaneously with energization of the lamps 42 on the particular poker machine whose operation is responsible for the pulse that results in energization of the lamp 44. This provides indication of a bonus award.

Energization of the third, sixth and ninth of the lamps 44 also results in energization of further higher level bonus awarding lamps 46. The first of the lamps 46 will therefore be energized as a result either of the 120-thousandth machine operation or of a pulse between the 80-thousandth and 120-thousandth pulse, depending upon whether a straight counting or psuedo-random counting technique is employed. Similar energization of the second and third lamps 46 occurs at higher number multiples.

The output from the scaler 39 is also applied to a counter 47 which records each bonus award. This counter also includes circuitry which is manually energized when payment of the award is made to the player of the relevant machine 30, so that reconciliation can be made between

bonuses awarded and paid-out for auditing purposes. Upon manual energization of this circuit (i.e. with payment of the bonus award) an output pulse is applied to the latch 40 to reset the latch and cause de-energization of the lamp 42.

The counter 47 may also be used to set the whole device back to zero when the final one of the lamps 44 is energized.

The abovedescribed circuitry provides for uninterrupted play of the remaining poker machines whilst an award payment is being made in respect of any one machine.

The lamps 45 and 46 are displayed by the panel which is shown in Figure 4, and lamps 42a which are connected in parallel with the lamps 42 are also displayed on the panel.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A device comprising means for receiving signals from at least one coin-freed machine responsive to operation of the machine(s), means for counting the received signals, means for providing an indication of a determined total number of signals received, and means for indicating the machine from which a said signal emanates which results in the determined number being reached.

2. A device as claimed in claim 1 which is connectable in circuit with a bank of two or more said machines, each machine being adapted to provide an electrical output signal responsive to it being operated, each machine being electrically connected in circuit with one said signal receiving means, and each signal receiving means being connected in circuit with the counting means and the means for providing indication of the determined total number of signals received.

3. A device as claimed in claim 2, wherein the means for providing indication of the determined total number of signals received includes indicators for providing indication of successively higher incremental levels of signal numbers received.

4. A device as claimed in any one of claims 1 to 3, wherein the means for providing an indication of the total number of signals received includes indicator lamps.

5. A device as claimed in any one of claims 1 to 4, wherein the means for indicating the machine from which a signal

emanates comprises indicator lamps associated with the respective machines.

6. A device as claimed in claim 2 or claim 3, wherein each said signal receiving means comprises a first gate which is gated responsive to an initiating input signal emanating from the associated machine and to an enabling signal being applied to the gate from a sequence generator, wherein the first gate provides an output signal, when gated, which is applied to a counter, wherein the counter provides an output signal upon a determined number of input signals being applied thereto from the first gate of all of the said signal receiving means, wherein the output signal from the counter is applied to a second gate associated with each of the said signal receiving means, wherein the output signal from the counter serves to enable the second gate of the said signal receiving means in which the first gate has been gated whereby such second gate is gated, and wherein the gated second gate provides an output signal for energizing a lamp associated with the machine from which the initiating signal emanates.

7. A device as claimed in claim 6, wherein the sequence generator applies an enabling signal to the first gate of each said signal receiving means in sequence over successive cycles.

8. A device as claimed in claim 6 or claim 7, wherein the counter provides a said output signal upon a predetermined number of said input signals being applied thereto.

9. A device as claimed in claim 6 or claim 7, wherein the counter incorporates a psuedo-random binary sequence generator which provides for an output signal from the counter on a psuedo-random basis, with one said output signal being provided per predetermined number of input signals applied to the counter.

10. A device for receiving signals from coin-freed machines responsive to operation of the machines, substantially as hereinbefore described with reference to Figures 1 and 2 or Figures 3 and 4 of the accompanying drawings.

DATED this 28th day of August 1978

LESLIE GEORGE LAURIE
By his Patent Attorney:

L. Walton

of GRIFFITH, HASSEL & FRAZER

FIG. 1

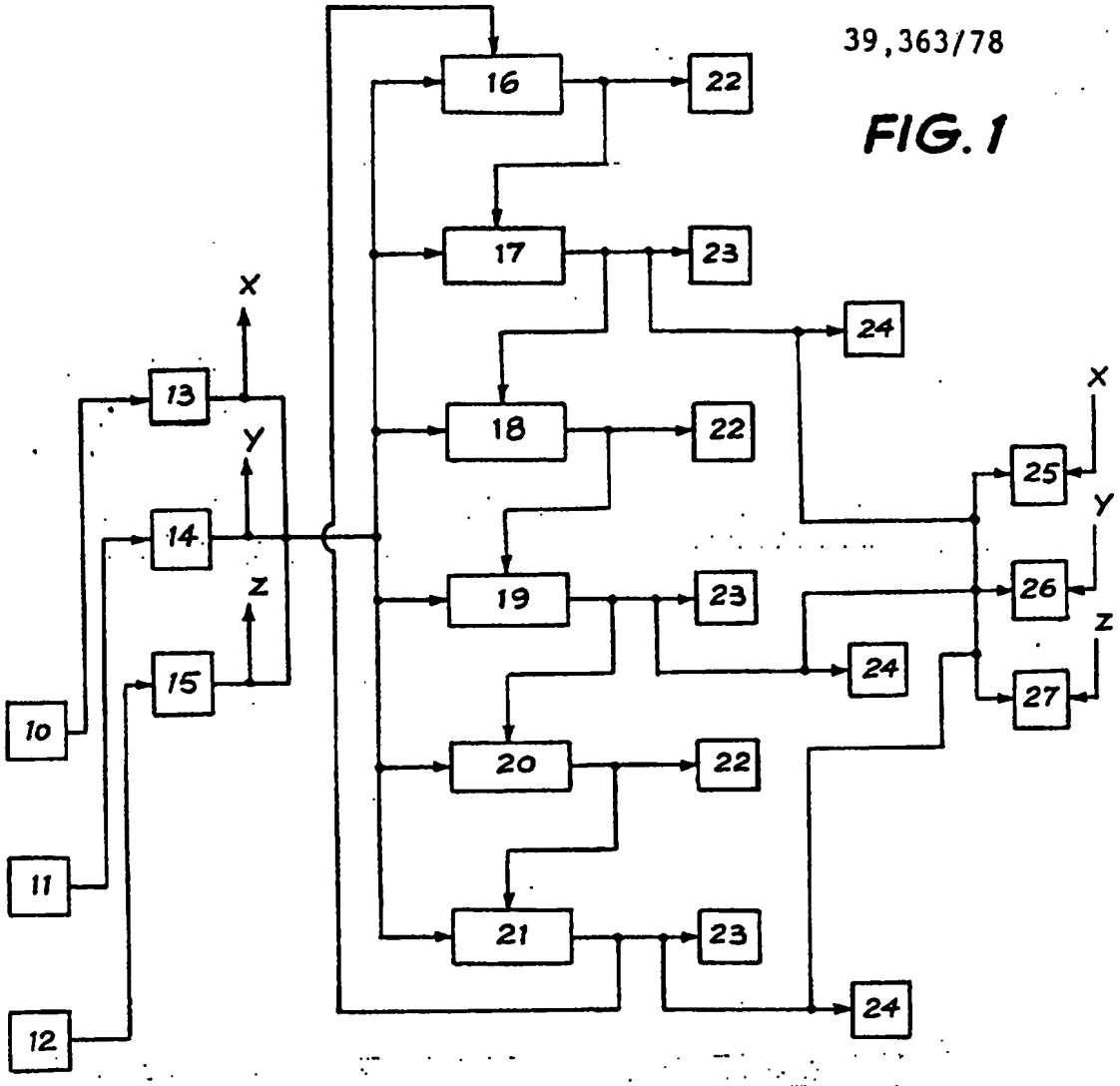
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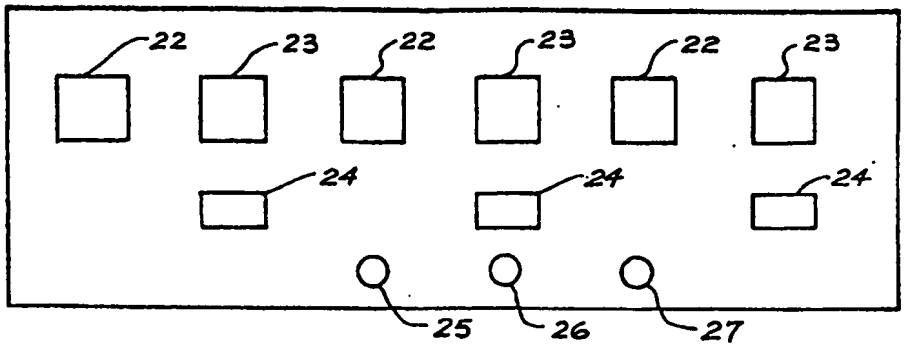
FIG. 2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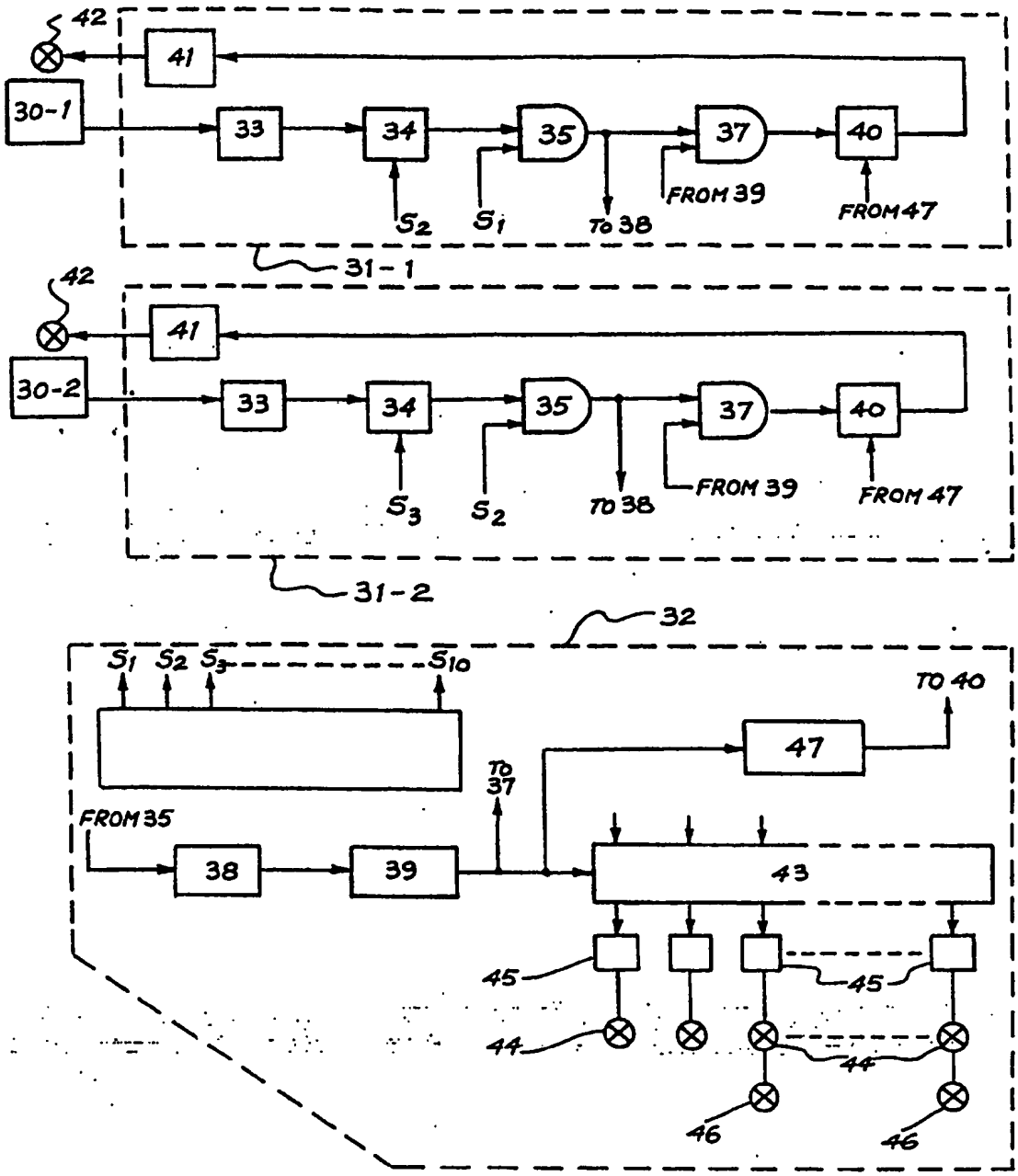
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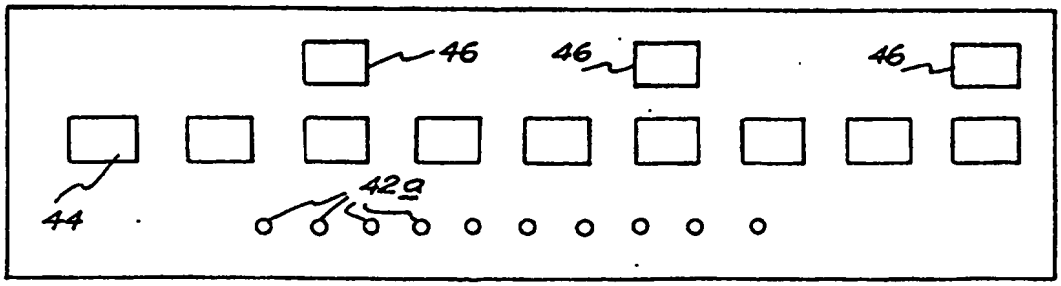
FIG. 3

FIG. 4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